Ostracism, Loneliness, and the Potential Psychological Impact of the Civilian-Military Divide:

An experimental study

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Abstract

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For several decades, the dominant perspective on the mental health of veterans has focused primarily on posttraumatic stress disorder (PTSD). Considerable research has shown recently, however, that only a relatively small portion of veterans suffers from PTSD. The stress of transitioning from being a soldier back into civilian life appears to better account for the myriad mental health problems and broader levels of distress veterans may report or develop. Unfortunately, research on this problem has been limited almost exclusively to self-report, survey studies. In the current research, we tested for this experimentally using an online Cyberball task. The anticipated and supported finding that veterans experience greater levels of loneliness when excluded or ostracized by non-veterans suggests an imperative need for broader research frameworks and increased dedication towards educating veterans on the necessity of meaningful social connectivity post-transition.

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Dedication

To John Chin who would have found a way to attend my closed defense because he was a man who never heard a no he couldn't turn into a yes and always found a path when all roads were closed. This is as much for you as it is for me. You are missed but ever present.

Introduction

The process of entering the United States military is a transformative life event experienced by roughly 18 million Americans, or about seven percent of the current American population (Vespa, 2020). However, the portion of Americans currently serving, or having served, in the U.S. Armed Forces is smaller than at any other time during the modern era except for the period of peace between World Wars I and II (Defense Manpower Requirements Report, 2018). Contemporaneously, at any given time, just one-half of one percent of American adults are serving on military active duty (Pew Research Center, 2011). Moreover, the current composition of the force is solely comprised of volunteers, a direct result of the dissolution of the draft and a concentrated, complicated effort post-Vietnam to professionalize the American fighting force (Kozicharow, 2018). This same force has also been engaged in the longest period of sustained conflict in the nation's history (Williams, 2011).

The amalgamation of the volunteer force alongside its shrinking size has resulted in a decreasing portion of the population bearing the responsibility of recent armed conflict. As such, the connections between military personnel and the broader civilian population appear to be growing more distant (Pew Research Center, 2011). This emerging disconnect between the population-at-large and military veterans is often referred to as the "civilian-military divide" or "civilian-military gap" (Feaver & Kohn, 2001; Rahbek-Clemmensen, et al., 2012). Most frequently used in the context of foreign policy, civil relations, and public policy, this term is intended to capture the widening disparities between those who served, or know someone who served, and those who have not or do not.

Broadly speaking, the rise of the all-volunteer force has allowed most Americans to detach from all things related to the military. In some instances, this separation has been explicitly

encouraged. This is perhaps best captured by former President George W. Bush's urging of Americans to "get down to Disney World" and "…enjoy life" after the attacks on September 11, 2001 (Fox, 2009). While arguably well-intentioned, it unwittingly amplified the civilian-military divide which was further compounded by the lack of a national consensus about engagement in those wars (Demers, 2011) and a historical, general lack of acknowledgment of soldiers who return from war (Doyle & Peterson, 2005) - though this has greatly improved in the decades since the Vietnam War. Underscoring this disconnect is evidence suggesting that Americans who have familial connections to the military have different views from those who do not on a range of topics related to patriotism, the military, and national security (Pew Research Center, 2011).

Relatedly, there is a widely held perception among both veterans and civilians that the public does not understand the problems faced by those in the military (Mobbs & Bonanno, 2018; Pew Research Center, 2011). With regard to the nation's most recent conflicts in Iraq and Afghanistan, approximately half of civilians say the wars have made little difference in their lives (Taylor et al., 2011) while 40% of Veterans report 'getting socialized to civilian culture' (Zoli et al., 2015) as a critical challenge during the transition from active service to society at large. Adding to the complexity of this period is the media's tendency towards the representation of veterans of recent wars as predominantly either broken warriors, unhinged and armed, or all-virtuous (Mobbs & Bonanno, 2018). The sensationalized portrayal of the damaged veteran has origins in the post-Vietnam era, when veteran organizations advocated for wider recognition of the psychological toll of war (Phillips, 2015). Unfortunately, a more nuanced approach was not adopted in the wake of increased sympathy towards veteran struggles. It is not uncommon, for example, to view headlines such as "Police get help with vets who are ticking

bombs" (USA TODAY), "Experts: Vets' PTSD, violence a growing problem" (CNN), and "Veteran charged with homeless murders: Hint of larger problem for US military?" (Christian Science Monitor) (Hoit, 2012; Mobbs & Bonanno, 2018).

As a result of both the aforementioned gap, the pervasive stereotyped image, and the manner in which civilians are made into soldiers and consequently not 'unmade' during the transition out, it is unsurprising that veterans often report feeling socially isolated and lonely (Wilson, Hill, & Kiernan, 2018), increased levels of institutional exclusion in higher education (Barry, Jackson, & Fullerton, 2019), and profess a longing to return to the military (Zoli, et al., 2015).

Chapter 1: Literature Review

1.1 Joining the Military

While the motivations for joining service are fluid and myriad ranging from family to institutional to occupational reasons (Helmus et al., 2018), the process by which civilians enter the profession of arms through any of the five branches of service (i.e. Army, Navy, Marine Corps, Air Force, Coast Guard) has remained remarkably static.

Individuals who choose to serve in the United States military undergo an explicit period of training in which they are instructed and immersed in practical skills training and indoctrinated in military standards, ethics, and values (Lieberman et al., 2014; McGurk, Cotting, Britt, & Adler, 2006). The crucible of entry level training is purposefully designed to strip away the civilian identity and transform men and women into Soldiers, Sailors, Airmen, and Marines (Mobbs & Bonanno, 2018). This intense socialization demands knowledge of and adaptation to a great deal of customs, policies, behaviors, and values-systems that encompass all facets of life. This vigorous process is seen as vital to the civilian to solider transition as it contributes to the formation of a strong military culture and the view that other members of the military are family (Lancaster, Kintzle, Casrto, 2018; Smith & True, 2014).

The progression from civilian to soldier also requires rapid acclimatization to an institutionalized lifestyle in which individuals are obligated to submit to novel situations (Lieberman et al., 2014) which offer little margin for error. When mistakes do happen, service members are held accountable by both their peers and superiors through various practices, including shaming and penalization that serve to reinforce the cultural expectation that the military requires perpetual responsibility and readiness (McGurk et al., 2006). The efficacy of training and the totality of transitioning civilians to soldiers is perceived as notably stressful as

established by self-reported elevated levels of anxiety and the presence of cortisol at the start of basic combat training (BCT; Lieberman, Kellogg, & Bathalon, 2008).

From a psychological perspective entering the military might best be described as a turning point, defined as a perceived, long-lasting change of course in the direction or purpose of one's life (Wethington, 2003). Perhaps unintentionally designed around this consideration, entry level training perpetuates major transformative views about the self, identity, and the meaning of life which are hallmarks of such periods or points in time. Moreover, the ability to make meaning out of such events is related to psychological well-being (Tavernier & Willoughby, 2012). One study examined American veterans who served in the armed forces from the late 1940s into the Korean War and demonstrated those who volunteered and entered the service as soon as age eligible exhibited larger gains in psychological strength and health from adolescence to midlife than did nonveterans (Elder, 1986).

While the earliest entrants can be seventeen, the bulk of modern-day volunteers enter between the ages of 18-25 with more than half of the entire active duty force (45%) comprised of that age group. This period of late teens to early twenties are years of intense change and importance regardless of military service. Classified as the period of *emerging adulthood*, older adults often identify events from this period as the most important in their lives (Arnett, 2000; Martin & Smyer, 1990). It is therefore unsurprising that during the course of entry level training and throughout an individual's time in service major life changes occur both internally and externally.

1.2 Warrior Identity

Outside of events being particularly concentrated during this period, emerging adulthood is also a period of expansive and normative existential exploration. Generally, identity is an

organizing principal which develops constantly throughout life and generally provides a sense of continuity within the self (Goth et al., 2012). However, the most identity exploration that occurs across the lifespan (Arnett, 2000) seemingly happens during the age of a majority of recruits. As a result, those self-identities may best be described as the mental representations individuals hold about themselves, to include autobiographical memories, self-attributions, beliefs, motivations, values recurrent thoughts, emotions, and self-perceptions (Verplanken & Sui, 2019).

Given the intensity and totality of military life this period may precipitate the forging of a unique military identity defined as "the degree to which soldiers and officers are motivated and willing to internalize the expressed values" (Johansen, Laberg, & Martinussen, 2014, p. 527; Lancaster, Kintzle, & Castro, 2018) of service. Argued to be similar to ethnic or quasi-ethnic identities (Daley, 1999; Lancaster & Hart, 2015; Zirker, Danopoulous, & Simpson, 2008), military, or warrior, identity and its impact on veteran adjustment is somewhat nascent. What research does exist suggests identification can be problematic if identity transfer or reconciliation does not occur during the transition out of the military (Ecclestone, Biesta, & Hughes, 2010; Smith & True, 2014) as military identity appears to predict levels of functioning in military veterans (Lancaster & Hart, 2017); Lancaster, Kinztle, & Castro, 2018). What is less clear is the impact of military identity on veteran adjustment as they experience ubiquitous interpersonal and professional stressors during their transition out of service.

However, of particular consideration, is the notion that 'veteran' confers a lifelong status. While this likely bestows an affiliated individual identity of varying degrees or dimensionalities, it also carries with it a social categorization or group membership. According to social identity theory, while groups offer self-esteem and a sense of pride and belonging (Tajfel, 1974), they also broker the possibility of in-group and out-grouping (Tajfel & Turner, 1986) or outgroup

favoritism (Jost & Banaji, 1994). For veterans, this poses a particular conundrum as by nature and definition of being a veteran you cannot be a civilian. Yet, there is enormous societal pressure to behave and engage as such.

British military often refer to life and work unaffiliated with the armed forces as returning to "civvy street" (Fulton et al., 2018) which carries with it the expectation to seamlessly mold back into the population milieu. While not an American phrase, the sentiment holds true. Moreover, given the dwindling population of veterans it is increasingly likely many veterans encounter few opportunities by which self-categorization might occur in which the veteran is able to perceive a collection of people, to include themselves, as a group (Turner & Onorato, 1999; Turner & Reynolds, 2011). Resultantly, there might be in-group confusion by which neither group identity (e.g. veteran or civilian) feels salient or congruent.

1.3 Military Transition Programming

Just as the decision to join the military is remarkably heterogeneous, so too is the decision to leave service. Remarkably less protracted, the official process by which service members leave active duty was established by Congress in 1991. Entitled the Transition Assistance Program (TAP), it was developed to help alleviate undefined transition difficulties for those who were involuntarily separated as a result of force level drawdowns (Kamarck, 2018). In 2011, as the two-pronged wars in Iraq and Afghanistan carried on and veteran issues became increasingly prominent Congress passed the Veterans Opportunity to Work (VOW) to Hire Heroes Act which instituted a mandatory counseling program for servicemembers intent on leaving the military. This stipulation required servicemembers to begin participating in TAP as soon as possible with specific guidance regarding time windows of participation for those retiring and those approaching their anticipated separation date. Moreover, it dictated that pre-separation

counseling occur no later than 90 days before the date of discharge unless "precluded by unanticipated circumstances or operational requirements" (Kamarck, 2018, p.1).

Problematically, this caveat gave, and continues to give, commanding officers exceptional latitude in the determination of such qualifications. As a result, this seemingly standardized process has non-standard applications across branches of service, installations, units, and military occupational specialties (MOS). Additionally, while the Obama Administration established an interagency taskforce and redesigned TAP to include five days of classroom-based instruction, there remain challenges related to compliance, monitoring, and programmatic structure. Accordingly, it's conceptualization of transition solely in terms of employment, living conditions, and major physical or psychological health overlooks those experiencing sub-clinical mental health difficulties (Keeling, 2018). Thus, such programming fails to take into account the intense socialization that occurs during the transition into military life and that those who serve in the military might develop a personal and cultural affiliation that can exist long after they transition off of active duty (Meyer, Writer, & Brim, 2016) regardless of programmatic participation.

1.4 The Relative Infrequency of PTSD

Adding to the complexity of this period is that while service members transitioning off active duty undergo some preparation for re-entry to civilian life their counterparts in the American public are not trained or educated in any comprehensive or global way on the unique strengths and challenges that accompany service. In one study, civilian respondents largely disapproved of the wars in both Iraq and Afghanistan but, more concerningly, believed over half of all post-9/11 veterans suffer from posttraumatic stress disorder (PTSD) (Taylor et al., 2011). While studies of veterans deployed in the recent conflicts in Afghanistan and Iraq (OIF/OEF)

have estimated the range of PTSD prevalence between 4.7% and 19.9% (Magruder & Yeager, 2009), the upper-limit of these estimates is likely exaggerated due to variability in the quality of the studies (Mobbs & Bonanno, 2018). Notably, studies employing methodologically rigorous design elements, such as prospective data collection and population sampling procedures, have consistently documented PTSD rates under 10% (Berntsen et al., 2012; Bonanno et al., 2012; Donoho, Bonanno, Kearney, Porter, & Powell, 2017; McNally, 2012).

Therefore, this believed prevalence rate of over half of all post 9/11 veterans is not only far higher than the 10-20% prevalence rate typically, but inaccurately, reported for PTSD specifically, but double the rate of any reported mental illness in veterans to include PTSD, depression, and substance use (Tanielian & Jaycox, 2008; Dursa, Reinhard, Barth, S. K. & Schneiderman, 2014; Thomas, Wilk, Riviere, McGurk, Castro, & Hoge, 2010; Schreger & Kimble, 2017; Ramchand, Schell, Karney, Osilla, Burns, R. M. & Caldarone, 2010).

The pervasive belief that a majority of veterans suffer from serious psychopathology hints at a troubling reality that many non-veterans hold empirically unanchored negative explicit or implicit biases of veteran mental well-being and adjustment. This is particularly problematic as studies have shown many Americans consider a diagnosis of PTSD to be somewhat synonymous with instability or the labels of "violent" or "crazy" (Mittal et al., 2013; Schreger & Kimble, 2017). This categorical coupling of PTSD and "unstable" appears to hold particularly true for military veterans as there is some evidence to suggest civilians possess an implicit bias that veterans are mentally unstable (Schreger & Kimble, 2017). The result and impact of such beliefs and biases on veteran outcomes is likely far-reaching as prior research has demonstrated that negative perceptions associated with PTSD have dissuaded veterans from seeking mental health

treatment (Dickstein et al., 2010) and prevent them from being hired into the workforce (Shepherd, Kay, & Gray, 2019).

1.5 Transition Stress

Although research shows that the prevalence of PTSD is generally considerably lower than civilians and many professionals believe, many soldiers nonetheless still find the transition out of service and assimilation back into civilian life unexpectedly protracted and complex (Mobbs & Bonanno, 2018). Exiting soldiers often find themselves unprepared for the instability of the initial phases of transition, and how this period may threaten their sense of self and self- worth. During this time, they may struggle with any number of interrelated concerns, including loss of their previous military identity, nostalgia for the order and purpose that characterized their service experiences, and beliefs about civilian perceptions of service in uniform (Mobbs & Bonanno, 2018).

Recent population survey studies suggest that 44% to 72% of Veterans experience high levels of stress during this transitional period, including difficulties securing employment, interpersonal difficulties during employment, conflicted relations with family, friends, and broader interpersonal relations, difficulties adapting to the schedule of civilian life, and legal difficulties (Morin, 2011). Struggle with the transition is reported at higher, more difficult levels for post-9/ 11 veterans than those who served in any other previous conflict (i.e. Vietnam, Korea, World War II) or in the periods in between (Pew Research Center, 2011). Crucially, transition stress has been found to predict both treatment seeking and the later development of mental and physical health problems, including suicidal ideation (Interian, Kline, Janal, Glynn, & Losonczy, 2014; Kline et al., 2010).

The transition period is also characterized by disproportionately high rates of suicide (Brenner & Barnes, 2012) particularly in the first-year post-transition, substance use (Burnett-Ziegler et al., 2011), unemployment (Ostovary & Dapprich, 2011), and homelessness (Bureau of Justice Statistics, 2007; Veterans Inc, 2010) with much of the research focused on extreme psychopathology such as the presence of PTSD or depression (Mobbs & Bonanno; 2018; Morin, 2011). By contrast, there is far less research concerning unique psychosocial characteristics and how they might contribute to the difficulties experienced in the transition from active duty to civilian life. When this type of work has been done, it has predominantly focused on attitudinal data measures gathered via self-report (Schreger & Kimble, 2017).

1.6 Employment and Ostracism

One area of veteran adjustment that has received particular attention has been employment with research, policy, and programs driven by public-private partnership. In particular, employers raised concerns about veteran recruitment and retention with much investment and investigation driven by a Gallup (2010) report indicating veteran workplace well-being was lower than that of their non-veteran counterparts. In a large quantitative study of 245 companies and interviews with six Fortune 500 companies it was found that one of the largest barriers turned out to be employer misconception (Burton Blatt Institute, 2013).

Impediments in employment due to discrimination related to military service underscores aforementioned stereotypes with veterans potentially being typecast as 'unfeeling' alongside evidence of bias occurring amongst hiring managers (Shepherd, Kay, & Gray, 2019). While current laws prevent veteran prejudice, such events and discussion around such behaviors does occur as evidenced by articles entitled "Study: companies still don't understand veterans," (militarytimes.com), "3 reasons why companies don't hire veterans," (Fortune), and "The new

battle our soldiers face: the bias of some corporate hiring managers," (Military.com). As a result, it is possible veterans are more prone to detecting and feeling rejection in certain contexts than their civilian counterparts.

Defined as acts of ignorance or social exclusion by another individual or group (Scheithauer, Alasker, Wolfer, & Ruggien, 2013; Williams, 2000) ostracism leads to feeling ignored or invisible (Williams, 2009). Often described as a powerful negative experience, it leaves individuals feeling frustrated anxious, or nervous (William, 2000). The initial reactions to this experience are similarly experienced by all individuals regardless of personality or social and situational factors (Scheithauer, Alasker, Wolfer, & Ruggien, 2013). A pervasive and powerful phenomenon, it can be observed in both human and animals across all stages of human development (Mende-Siedlecki & Bavel, 2019).

Considerable research with non-veterans, or civilians, regarding this experience indicates experiences of ostracism are distressing even when they occur in passing and are seemingly benign (Smart & Leary, 2009; Wesselmann et al., 2018; Williams, 2009). It is unsurprisingly that recent research with veterans suggests ostracism might contribute to poorer mental health outcomes post-deployment (McGraw, 2016; Wesselmann et al., 2018).

1.7 Social Isolation and Loneliness

The loss of connectivity in the workplace is potentially more significant for the veteran population. Given the intensity by which social bonds are formed during service it is unsurprising that veterans describe the relationships they develop during a period of service as some of the closest they form in their lives (Pivar & Field, 2004).

Groups who collectively experience pain, turmoil, catastrophe, or significant life events tend to form stronger social bonds and become more cohesive (Durkheim, 1912; Whitehouse, 1996;

Whitehouse, 2012). The peer-bonding that occurs during training events which happen often throughout a period of service is grounded in the service member's ability to trust other members of their unit and the general ability to function and work as a team (Siebold, 2007).

Unlike the War in Vietnam, where US soldiers were frequently rotated in and out of units (Kaplan, 1987), veterans of recent conflicts primarily remain with the same unit, following completion of entry level and advanced individual training, throughout the train-up to deployment, deployment, and redeployment (Army Regulation 614-6, 1985). The aggregate time spent together, forced interdependency, and the shared hardships potentially leads to unanticipated and complex levels of affective bonding between Service Members. While this bond may act as a protective factor in the development of PTSD (Pivar & Field, 2004), the actual or perceived loss or weakening of these bonds during the transitional period off of service and back into civilian life may be associated with increased distress over the life span. This may be particularly true if veterans experience or perceive the experience of being ostracized particularly as there are various, subtle ways that individuals might experience the facets of feeling ignored or invisible. For example, feelings of ostracism can occur when someone does not receive a text message (Smith & Williams, 2004) or engagement on social media (Wolf et al., 2014) even when carried out by strangers (Nezlek, Wesselmann, Wheeler, & Williams, 2012).

Alongside joblessness is the risk of social isolation and loneliness, both of which are risk factors for suicide (Calati et al., 2019), depression (Victor, Scambler, Bond, & Bowling, 2000), and mortality (Steptoe, Shankar, Demakakos, & Wardle, 2013; Holt-Lunstad, Smith, & Layton, 2010). These findings are not limited to older individuals who experience high rates of social isolation and loneliness. Meta-analytic data indicates a greater risk of mortality for younger

populations experiencing similar conditions (Holt-Lunstad et al., 2015; Wilson, Hill, & Kiernan, 2018).

Despite being separate concepts, loneliness and social isolation can be experienced together (Wilson, Hill, & Kiernan, 2018). While social isolation is more of an objective state which considers the integration of the individual in the social environment, such as the frequency of social relations and social networks (Victor, Scambler, Bond, & Bowling, 2000; Wilson, Hill, & Kiernan, 2018), loneliness has long been defined as the gap between an individual's social relation preference and the reality of their situation (Perlman & Peplau, 1981). In other words, loneliness is perceived social isolation. Poignantly, and counterintuitively, a person can be lonely while surrounded by other people.

While the advent of social media appeared to increase digital connectivity for many Americans, the prevalence of loneliness also rose (Cacioppo et al, 2015). Loneliness, the discrepancy between desired and true social engagement, is often distinguished by feelings of undesired separateness (Lynch & Convey, 1979), alienation (Sadler, 1978), and perceived social isolation (Cacioppo et al., 2016; Weiss, 1973). For some, it also appears to have a core of maladaptive social cognition consisting of negative thoughts about self-worth and abnormal perceptions of how they are viewed by others (Masi et al., 2010). For this reason, a meta-analysis of 20 randomized trials on therapies designed to target loneliness found those involving social interaction, experiencing social support, or social skills improvement were ineffective (Masi et al., 2010). In short, a lack of social engagement can bring about feelings of loneliness but increasing interaction does not necessarily attenuate it.

This is particularly problematic as chronic loneliness has aversive effects on mental and behavioral problems (Cacioppo et al., 2015; Cacioppo et al., 2016) and might be an early

warning sign and predictor of suicidality among soldiers (Griffith, 2015; Lester et al., 2011). In a study with active-duty service members, qualities of loneliness appeared to differ from their civilian counterparts (Cacioppo, et al., 2016). For instance, relationship quality with friends and relationship quality with platoon members were significant, whereas relationship quality with spouse and relationship quality with family were not (Cacioppo et al., 2016). This suggests antecedents of loneliness for military members are culturally bound by their service which might play a uniquely impactful role during transition. Moreover, veteran loneliness appears to differ in its quality characterized as feeling "alien and homeless in a civilian world," as well as a pervasive sense of being misunderstood and singular in their experience (Stein, 2017).

1.7 Nostalgia and Longing to Return to Service

It is perhaps these experiences of loneliness and being misunderstood, alongside loss of contact with former service members, that underscores why 30% of veterans in a survey of over 8,500 endorsed 'often' or 'always' desiring to go back to their time in service with another 29% reporting such yearning occurs some of the time (Zoli et al, 2015). Defined as sentimental longing for the past, nostalgia has frequently been shown by research to be a predominantly positive emotion (Newman & Sachs, 2020). One proposed function of this emotion is its ability to reduce the unpleasant effects of loneliness by increasing perceptions of social support following loneliness (Zhou et al., 2008) as most triggers of nostalgia are negative experiences (Newman & Sachs, 2020) such as social exclusion (Seehusen et al., 2013).

Yet, many studies which assess the function and impact of nostalgia suffer poor methodological considerations such as lacking mundane realism (Aronson & Carlsmith, 1968; Aronson et al., 1998; Newman & Sachs, 2020) and often rely on extensive recall which are complicated by biases and heuristics (Bradburn at al., 1987; Newman & Sachs, 2020; Schwarz,

2012). Studies that have overcome such hurdles and measures daily, fluctuating states of nostalgia in daily life utilizing Ecological Momentary Assessment methods have found that nostalgia's impact is considerably more negative than previously established (Newman at al., 2020a; Newman & Sachs, 2020). Lagged analyses demonstrated nostalgia predicted increases in rumination and sadness while decrementing feelings of peacefulness and calm (Newman et al., 2020, Study 3).

Furthermore, evidence suggests that the valence of the nostalgic feeling influences well-being in its affiliated direction (Newson & Sachs, 2020). Meaning, nostalgic feelings that are positively-valenced (i.e. spending time with childhood friends) will increase well-being whereas negatively-valenced nostalgic feelings (i.e. social isolation) will decrease it. Specifically, with regard to loneliness, Newson & Sachs (2020) found the negative effects of nostalgia on affective well-being were more powerful on days when people felt the loneliest suggesting one reason people do not feel well when they feel lonely can be partially attributable to nostalgia.

The conclusion across a multitude of studies seems to suggest that purposeful engagement in nostalgic reverie may improve well-being but involuntarily and unexpectedly experiencing it may have the opposite effect (Newman et al., 2020a; Newman & Sachs, 2020). While no studies exist to examine such impact on military veterans it is conceivable that unanticipated reminders of service, like when comrades who are still serving post photos on social media, precipitate nostalgic feelings.

1.8 The Current Study

Despite the relatively large canon of literature on the civilian-military divide, surprisingly little research has examined the psychological impact of this period. Seemingly characterized by a lack of shared experience, gaps in understanding, potential for ostracism, and isolation from

civilians, veterans may experience increased negative feelings, anxiety, and physiological arousal when attempting to reenter civilian life. Understanding the emotional impact of this divide will help elucidate a portion of the heretofore unknown psychological impact of the transition from active service to civilian life. Such clarification provides opportunities to inform programming, contribute meaningfully to the growing repertoire of interventions, and shed light on the heterogeneity of veteran outcomes outside the traditional psychopathology-focused framework.

Suicide prevention remains a top clinical priority for the Veterans Health Administration (Lyon, 2017) as a multitude of efforts to include legislation, federal funding, Veteran Service Organizations, private-public partnerships, and clinical interventions have failed to address the phenomenon. Conceivably one reason for the deficiency has been a consistently narrow focus on posttraumatic stress disorder while disregarding the broader implications of an all-volunteer force and a two-pronged decades old war. There is some evidence of the disconnect between veterans and civilians as research has shown veterans are uniquely perceived in workplace contexts as unfeeling (Shepherd, Kay, & Gray, 2021) and, as whole, unstable (Schreger & Kimble, 2017). Such civilian perceptions increase the likelihood or potential of work-related and interpersonal rejection leading to increased feelings of isolation and loneliness. Concerningly, loneliness is associated with higher levels of depression and suicide in the military veteran population (Teo et al., 2018).

By applying well-established paradigm that reliably induces feelings of ostracism in a novel way, this study will attempt to experimentally assess a portion of the psychological civilian-military divide with a main focus of understanding the impact of ostracism by non-veterans, or civilians, on levels of loneliness in the veteran population.

Cyberball, the selected paradigm, simulates a ball-passing game which can be run entirely online. The game was initially designed to investigate ostracism in a laboratory setting (Williams, Cheung, & Choi, 2000) but has also be probe broader issues such as prejudice and discrimination (Williams & Jarvis, 2006). In the game, participants are led to believe they are playing with avatars of two other people in real time and not a computer program. With researchers controlling and programming the paradigm, participants are often randomly assigned to one of two conditions: inclusion and exclusion. In the first condition, participants are passed the ball an equal number of times which amounts to roughly five to seven throws or one-third of the passes. To induce feelings of ostracism in the exclusion condition, participants are passed the ball once at the beginning of the game and then not again for the duration of the five-minute task (See Figure 2). Over 240 studies have been published using the Cyberball paradigm which has repeatedly shown strong validity and reliability in inducing feelings of ostracism across a wide variety of participants (Hartgerink et al., 2015).

A meta-analysis (Hartgerink et al., 2015), based on 120 Cyberball studies, farther confirmed the reliability of the exclusionary effect and estimated a large effect size ($d > 1.4$) (Shuck, Niedeggen, & Kerschreiter, 2018). Retrospectively, those who endured ostracism experience negative mood and endorse threatened fundamental social needs (belonging, self-esteem, control, and meaningful existence) (Zadro et al., 2004; Williams, 2007). As such, it is reasonable to believe this exclusion experience somewhat emulates the social isolation and rejection potentially experienced during the transition.

1.9 Anticipated Findings

As research has shown that both ostracism and social exclusion have significant main effects on loneliness (Kavakli, 2019), we anticipate ostracized participants will endorse higher

levels of loneliness than their counterparts who are not excluded during the experiment. However, within the two groups who are excluded we anticipate that veterans who are excluded by non-veterans will endorse higher levels of loneliness than those who are excluded by other veterans. This finding was anticipated by applying tenets of social identity theory (Tajfel & Turner, 1986) and the assumption of outgroup favoritism (Jost & Banaji, 1994).

Across a surprising cornucopia of reported potentially traumatic events, age, period of service, and diagnostic qualifications, many Veterans express the transition as being a process that seemingly has no end (Fulton et al., 2018). Rather than temporal, the transition is reportedly formless and indefinite, rife with frustrating encounters with those who seemingly do not understand their time in service. As such, some veterans might be particularly vigilant with regard to social threat or alienation. Yet, there also appears to be an intense desire to belong in their new world, a world that does not involve the military. We anticipate this paradoxical experience will lend itself to a phenomenon best described by outgroup favoritism in which veterans prefer civilian company and in this experiment will result in higher levels of loneliness when they feel excluded by them.

Finally, in exploratory analyses, we will assess whether the intensity of loneliness is moderated by warrior identity and nostalgic frequency. Here is it anticipated that more military-related identity will result in greater levels of loneliness consistent with previous research (see Lancaster & Hart, 2015) that demonstrated identity was related to symptom levels (McNally, 1995) and pathology (Glockner, 2007). Regarding frequency of nostalgia, or longing to return to service, we expect those who endorse greater occurrences of such reverie to exhibit higher levels of loneliness in line with recent findings suggesting a negative interactive effect between nostalgia and loneliness on affect (Newson & Sachs, 2020).

Chapter 2: Method

2.1 Participants

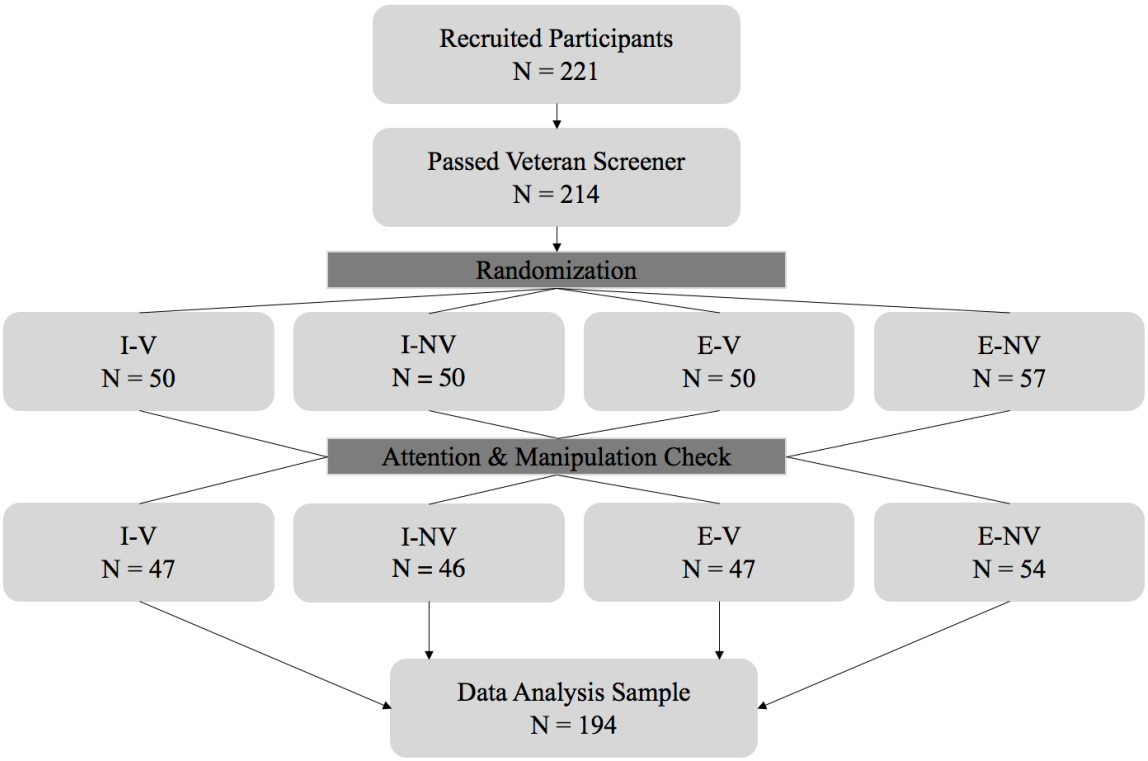
Participants in this community-based, non-clinical sample were recruited via social media postings across LinkedIn, Facebook, Instagram, and Reddit (see Appendix A). Inclusion criteria for this experiment was trifold: a) served on US active-duty military b) male and c) ages 18-65. For this study, due to the underrepresentation of females in the military, women veterans were excluded. Of note, multiple female veterans commented or communicated via private message their interest in participating in a future study.

To screen participants for qualification five questions were adapted from a veteran study created for Amazon mechanical Turk (mTurk) (Lynn & Morgan, 2016), an online crowd-sourcing platform (see Appendix B). While Lynn & Morgan (2016), allowed two incorrect questions participants who incorrectly answered more than one screening question in this study were excluded from analysis. Similarly, those who failed the manipulation check were also excluded.

Of the 221 participants who completed the study, fourteen responses were discarded due to failing one of the screener questions. Of those fourteen, twelve failed the question asking about location of final physicals and two failed the question regarding various job fields. Thirteen other participants accurately answered the veteran screening questions but failed to pass the manipulation check inaccurately selecting the identity of the other participants they played with or the number of throws received. As a result, 194 participants (N = 194) were included for analysis (see Figure 1).

Figure 1

Participant Flow Chart



**Note: I = Inclusion E = Exclusion*

V = Veteran NV = Non-Veteran

Participants who completed the survey and passed the screening questions and manipulation checks were offered a $15 gift card of their choice to Amazon, Uber Eats, DoorDash, or Apple.

2.2 Overview of procedure

After clicking on the embedded hyperlink in the social media post, participants were directed to Qualtrics, a secure, online survey platform. Participants were presented an informed consent page explaining the purpose and procedures of the study, potential risks and discomforts of participating, benefits to participants and the scientific community, incentives to participate, the confidential nature of the data, contact information for the principal investigator, and the

voluntary nature of participation in the study, including clear permission to terminate from the study at any time without penalty.

After participants were consented, there were asked screener questions to affirm their veteran status and basic demographic questions. Participants were then presented two short questionnaires, the Warrior Identity Scale (WIS) and the Positive and Negative Affect Schedule (PANAS). Participants were randomized into four conditions and engaged in the Cyberball experimental task.

At the conclusion of the Cyberball task, participants were presented a manipulation check to assess their recollection of the identity of who they played ball with (veterans or non-veterans) and how many passes they received ("1-2 throws" or "More than 2"). This was followed a brief measure of self-reported loneliness, which served as the primary dependent measure, and a short questionnaire assessing frequency of nostalgia for the military. All participants were then debriefed about the purposes of the study, the nature and rationale for deception, and means of accessing the Veterans' Crisis Line in the case that participants are distressed by involvement in the study (see Appendix C).

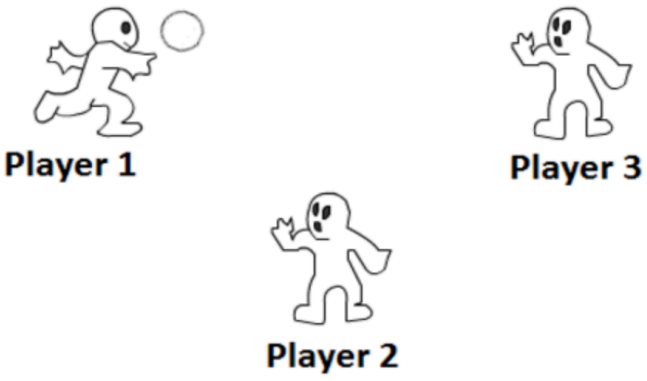
Cyberball task

As briefly described above, Cyberball is an online ball-tossing game during which participants believe they are playing a game of catch with two other individuals. The other individuals are not actually other participants, but avatars controlled by the experimental software. Various facets of the Cyberball game, including the speed of the game, the frequency of inclusion, player information, and avatar presentation can be modified by the software

In the current study, the veteran status of the other players was manipulated between-subjects, participants were told that the other players (players 1 and 3, see Figure 2) were either veterans, like themselves, or non-veterans, unlike themselves.

Figure 2

Image Capture of Cyberball Paradigm



While participants were aware of whom they were playing with, they were blind to inclusion-exclusion condition, which was also manipulated between-subjects. In the inclusion condition, the participant was passed the ball an equal number of times, which amounted to roughly 7-9 throws. In the exclusion condition, the participant was immediately passed the ball one time and then not again for the remainder of the simulation which is approximately five minutes in duration.

To begin the Cyberball game, the following text was presented on the computer screen:

"For the next section, we are comparing military veterans and non-veterans on a number of cognitive and emotional skills during a ball-passing game.

You will be placed in a group of 3 - you will either be playing with two other veterans OR two non-veterans.

You are Player 2.

Please read the instructions carefully to see if your fellow players are veterans or civilians. If using a smartphone, you will need to turn rotate it at this time."

Prior to the commencement of the ball passing game, participants were presented a welcome text which indicated the game was for the purposes of testing mental visualization on task performance and then stated the veteran identity of the other players (see Appendix D).

Participants were randomly assigned to one of the four conditions: inclusion – veterans(I-V); inclusion – non-veterans (I-NV); exclusion – veterans (E-V); exclusion – non-veterans (E-NV). Both the identity of the other players (veteran-nonveteran) and whether participants were included or excluded (received only one or two passes from other players) were manipulated between-subjects. This procedure resulted in a 2 x 2 between-subjects design (see Table 1) with scores for the primary dependent measures, loneliness, examined across the four conditions.

Table 1

2x2 Experimental Design

		Identity of Other Players	
		Veterans	Non-Veterans
Number of Passes	Inclusion	I-V *N*= 47	I-NV *N*= 46
	Exclusion	E-V *N*= 47	E-NV *N*= 54

Two other variables were explored, nostalgia and warrior identify, as potential moderators of the experimental effects.

Pre-Cyberball questionnaires

Warrior identity. The WIS (Lancaster & Hart, 2015) was developed as a multidimensional scale of military identity. Lancaster and Hart (2015) provided initial

psychometric evidence with strong internal reliabilities (α = 0.76) as well as generally strong relationships with key indicators of psychosocial functioning such as post-deployment social support, affect, and depression. The scale provides four options from 1 (strongly disagree) to 4 (strongly agree) on 34 items related to military identity. The version of the scale used in the current study is a revision of the longer version used in Lancaster and Hart (2015). The revised version is shorter than the original version (34 items in the short version and 66 in the long version); in the revised version, redundant items (for example, "I am proud to have served in the military," which overlapped with "I feel good about my military service").

Nostalgia. In order to assess nostalgia, defined as sentimental longing for one's past (Sedikides & Wildschut, 2018), we developed a 4-item measure to assess participants overall longing to be back on active-duty service (α = .89). For this item, participants were asked to indicate 1) "How often do you long or desire to be back on active duty" and 2) "How often do you reminisce or look back fondly on your time in service" 3) "When things go wrong, I tend to think back on the good times from my military service" 4) "When I'm unhappy, I turn to memories of my time in the military to cheer me up" on a 6-point Likert scale ranging from 1 (Never) to 6 (Always).

Positive and Negative Affect Schedule (PANAS). The Positive and Negative Affect Schedule (PANAS) is the most widely and frequently used scale to assess positive and negative affect (Diaz-Garcia et al., 2020). The PANAS is a twenty-item measure which contains two ten item scales to measure both positive affect (PA) and negative affect (NA) (Watson, Clark, & Tellegen, 1988). The PA subscale reflects the extent to which a person feels interested, excited, strong, enthusiastic, proud, alert, inspired, determined, attentive, and active. The NA subscale assesses the extent to which a participant feels stressed, upset, guilty, scared, hostile, irritable,

ashamed, nervous, jittery, and afraid. The items are both scales are rated from 1 ("very slightly or not at all") to 5 ("extremely"). The PANAS has been widely utilized as a self-reported measure of affect in both the community and clinical contexts. (Merz et al., 2013). The PANAS demonstrates consistently strong internal reliability with both PA (α = .86-.90) and NA (α = .84-.87) (Magyar-Moe, 2009). For this study, this measure was used to balance baseline scores of negative affect across conditions prior to the experimental task.

Post-Cyberball measure

Loneliness. Immediately following the Cyberball task, participants completed the UCLA Loneliness Scale Short Form (ULS-8) in order to reduce participant response burden. There is a high correlation (r=0.91) between ULS-8 and the original long form measure of loneliness (ULS-20). Data obtained from 192 individuals for reliability analysis indicated internal consistency coefficient as 0.84. In a study that investigated item discrimination, associations between ULS-20, ULS-4 and ULS-8 and life satisfaction, alienation, social anxiety, locus of control and health related behaviors (e.g. smoking, alcohol, exercise) data showed that both ULS-20 and ULS-8 had similar associations with related variables, consistent with the conceptual structure of loneliness (Hays & DiMatteo, 1987). This study farther emphasized that the ULS-8 items reflected social isolation which was perceived as a representative of individual loneliness (Hays & DiMatteo, 1987).

Chapter 3: Results

3.1 Baseline data

The sample was entirely male (n = 191, 100%) and contained 50.8% Army veterans, 21.5% Marine Corps veterans, 15.2% Air Force veterans, 11% Navy veterans, and 1.6% Coast Guard veterans. Number of deployments ranged from zero (29.8%) to three or more (23.0%), with 26.2% reporting one deployment and 20.9% reporting two (see Table A1). Inspection of means on demographic and predictor variables revealed that participants had higher baseline negative affect (NA) scores on the PANAS in the E-NV condition relative to participants in all other conditions. Accordingly, the three participants from this condition were excluded prior to subsequent analysis because they endorsed levels of pre-negative affect that were greater than two standard deviations above the mean for the condition (M = 24.31, SD = 9.851; Overall M = 22.02, SD = 9.695). Following this procedure, baseline scores on NA were balanced across conditions. Post-hoc analyses also showed that the experimental findings, discussed below, did not meaningfully differ with and without these three participants.

Pearson correlation indicated a significant moderate correlations between warrior identity and nostalgia ($r(189) = .49$, $p < .001$) indicating as the value of warrior identity increased so did endorsement of nostalgic engagement. No other variables were significantly correlated (see Table A2).

Linear Regression Analyses of Experimental Data

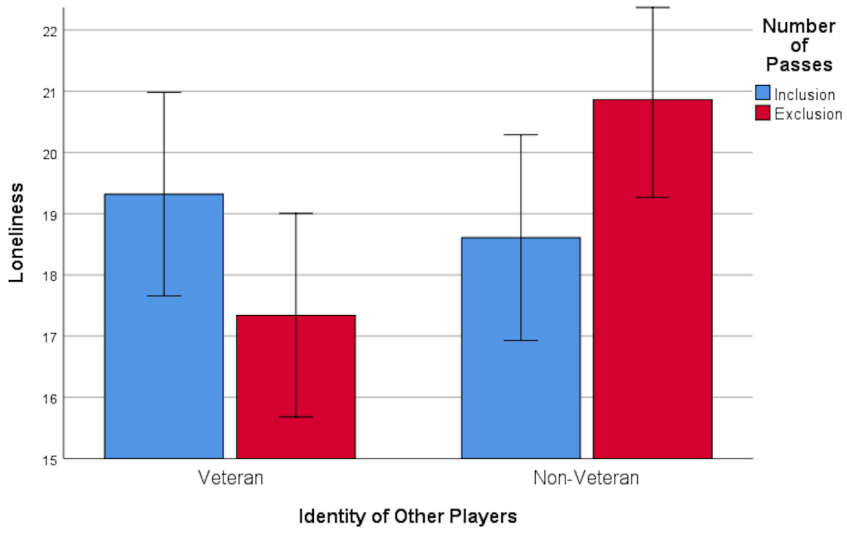
Prior to examining the experimental effects in a linear regression, the relevant assumptions of this statistical analysis were tested. Firstly, a sample size of 191 was deemed adequate given seven independent variables to be included in the analysis (Tabachnick & Fidell, 2001). An examination of correlations revealed that no independent variables were highly

correlated. However, as the collinearity statistics were all within accepted limits, the assumption of multicollinearity was deemed to have been met (Coakes, 2005; Hair et al., 1998). Residual and scatter plots indicated the assumptions of normality, linearity and homoscedasticity were all satisfied (Hair et al., 1998; Pallant, 2001).

To test the primary effects of the experiment, we regressed the identity of other players (veteran, nonveteran), whether the other players included or excluded the subject (inclusion-exclusion), and the interaction of these conditions (see model 1, Table A3). The regression model was significant (F (3,187) = 3.168, p< .05) and accounted for 4.8% of the variance in Loneliness. Neither the veteran-nonveteran identity of the other players (B = -.710, t(187) = -.593, p =.554) nor their inclusion-exclusion of the participant(B = 4.-1.979, t(187) = -1.660, p =.099) yielded significant effects. However, the interaction of identity of other and inclusion-exclusion was significant (B = 4.233, t(187) = 2.529, p < .05) (see Figure 7).

Figure 3

Graphed Significant Interaction Effect



To better understand the interactive effect and assess the difference in means between groups across the four conditions, we conducted follow-up T tests. Post-Cyberball loneliness following exclusion differed significantly by veteran-nonveteran status of the other players, $t(96) = -3.032$, $p = .003$, $d = .61$ (See Figure 7). As predicted, participants were lonelier when excluded by non-veterans, $M = 20.86$, $SD = 5.90$), than when excluded by veterans, veteran $M = 17.34$, $SD = 5.58$. By contrast, post-Cyberball loneliness following inclusion did not significantly vary in relation to the veteran-nonveteran status of the other players, $t(91) = .589$, $p = .56$, $d = .12$.

Unexpectedly, as Figure 7 suggests, participants appeared to be least lonely overall when excluded by fellow veterans. However, comparison of post-Cyberball loneliness across inclusion-exclusion conditions when other players were veterans (inclusion, ($M = 19.31$, $SD = 5.58$, exclusion, $M = 17.34$, $SD = 5.56$), showed only a marginally significant effect, $t(92) = 1.72$, $p = .09$, $d = .35$. Similarly, the inclusion-exclusion comparison when other players were non-veterans was also only marginally significant (inclusion $M = 18.61$, $SD = 6.04$, exclusion $M = 20.86$, $SD = 5.90$, $t(95) = -1.86$, $p = .07$, $d = .37$).

3.2 Hierarchical Regression Analysis of Potential Moderators

To further probe variation of Loneliness, we repeated the regression analysis above as a hierarchical regression to explore possible moderators and their interactions with conditions on subsequent steps. The first step of this analysis was identical to the linear regression reported above. On the second step of the model, we entered Nostalgia and on the third step we entered Warrior Identity. Finally, the interactions of Nostalgia and Warrior Status with the experimental

conditions (veteran-nonveteran other and inclusion-exclusion) were considered for entry on step four (See Table 4).

Introducing Nostalgia for the military on the second step explained an additional 1.6% of variation in Loneliness and significantly increased the overall variance explained, F (1,186) = 3.211, $p < .05$. Adding Warrior Identity to the regression model on the third step explained a further 3.1% of the variation in Loneliness and again significantly increased the overall variance explained, F (1,185) = 6.282, $p < .05$. Finally, although the addition of the interactions between the two experimental conditions and Nostalgia and Warrior Identity on the fourth step explained an additional 0.8% of the variation in Loneliness, the overall change in R^2 square for this step was not significant, F (2,183) = .822, p =.441.

A closer examination of the standardized regression coefficients across the three models indicated that Nostalgia and Warrior Identity informed loneliness independently but did not moderate the finding of that experimental condition (E-NV), independent of other factors (see Table A4). Additionally, Nostalgia (β = .228, $p < .05$) and Warrior Identity (β = -.202, $p < .05$) showed significant inverse relationships with Loneliness. Specifically, Nostalgia for the military was associated with increased loneliness while Warrior Identity was associated with decreased loneliness.

Chapter 4: Discussion

For several decades, the dominant perspective on the mental health of veterans has focused primarily on PTSD. Considerable research has shown recently, however, that only a relatively small portion of veterans suffers from PTSD (Berntsen et al., 2012; Bonanno et al., 2012; Donoho, Bonanno, Kearney, Porter, & Powell, 2017; Mobbs & Bonanno, 2018; McNally, 2012). The stress of transitioning from soldier to veteran status appears to better account for the myriad mental health problems and broader levels of distress veterans may report or develop (Mobbs & Bonanno, 2018). A primary consideration in this regard is the perception of social isolation and loneliness many veterans experience in relation to the civilian population.

Unfortunately, research on this problem has been limited almost exclusively to survey studies. In the current research, we tested for this experimentally using an online Cyberball task. Our results showed, as predicted, veteran participants experienced significantly more loneliness when excluded or ostracized by nonveterans (civilians) players than when excluded by veteran players. Somewhat surprisingly, veteran participants experienced the least loneliness when ostracized by veteran players, however this effect was small and nonsignificant. We also explored the possible moderating role of warrior identity and nostalgia for the military. Both independently predicted loneliness, with warrior identity predicting reduced loneliness and nostalgia for the military predicting increased loneliness. However, neither warrior status nor nostalgia moderated or interacted with responses to the Cyberball task.

This experiment and the predicted effect of civilian exclusion on increased levels of veteran loneliness is noteworthy as it provides the first experimental evidence of this phenomenon. While expected due to previous research suggesting the veteran transition experience is typified by feelings of alienation and isolation until now there has been no

empirical evidence to suggest veterans experience same-type interpersonal interactions differently dependent upon the identity of the other person(s). The current findings provide an important substantiation to the idea there is a psychosocial component of the civilian-military divide whereby actions perpetuated by non-veterans appear to carry greater psychological consequence in certain contexts. While these findings require replication and further exploration, they open up relevant lines of inquiry regarding the impact of society and the ramifications of an all-volunteer force on the well-being of individual military veterans.

There was also a modest but surprising finding suggesting that veterans are least lonely when excluded by their fellow veterans. Although this finding was only marginally significant, it is worth exploring potential explanations for this outcome. As loneliness is a subjective, cognitive experience there is an element of appraisal to its manifestation. From the perspective of a structural model of appraisal (Lazurus, 1991), it is conceivable that during primary appraisal, when individuals evaluate the motivational relevance and congruence of a situation (Smith & Kirby, 2009), veterans who were excluded by other veterans might have estimated that ostracism by a group they less frequently have contact with is somewhat irrelevant to their daily needs or well-being. On the other hand, these results do not neatly fit within social identity theory's assumption of in-group bias or in-group favoritism by which people tend to give preferential treatment to those who belong to the same group (Taylor & Doria, 1981) which would ostensibly result in veterans feeling lonelier when ostracized by their fellow veterans.

Relatedly, higher levels of warrior identity led to lower reported levels of loneliness. This appears to run contrary to McNally's (1995) and Lancaster and Hart's (2018) findings which suggest that higher levels of identity result in increased symptomology or distress. One potential explanation for this contradiction might be the unexplored role of stoicism and its

implications for military or warrior identity. Colloquially disbursed through common usage of phrases related to the embracement of suffering, enduring pain or hardship without displaying emotion or evidencing complaint is expected during military service. As a result, in the face of social ostracism, there might have been a reluctance to acknowledge or report the hurt or negative feelings evoked by such an experience. This possibility is supported by evidence in health research showing a stoic attitude as one way in which the elderly cope with the effects of chronic pain (Cairncross et al., 2007; Helme and Gibson, 1999; Moore et al., 2012) and are commonly related to under-reporting of mild or weak pain. However, stoicism, defined here as efforts to actively suppress or conceal pain, does have its limits as it is less likely to affect reporting of moderate to severe pain (Moore et al., 2012). However, it is possible the current study, which presented a relatively low threshold for discomfort, may have provoked a tenet of this type of stoicism which led to its mild attenuating effect on levels of loneliness. It is also worth noting that Marines were unexpectedly over-sampled with participation volume twice the size (21.5%) of normal representation in the veteran population at large (10%) (Department of Veterans Affairs, 2021). This is of particular consideration as each branch of service possesses its own unique culture and customs raising the concern that a broad measure of warrior identity might fail to capture significant, service-specific components that influence adjustment and well-being.

As anticipated and in line with Newson and Sachs (2020) recent work, reports of higher frequencies of nostalgic feelings resulted in increased levels of loneliness. Nevertheless, this impact should be interpreted with caution because of the modest size of the effect and because the measure assessed the frequency of nostalgia not its quality or antecedent. Additionally, this

measure of nostalgia fails prey to the aforementioned shortcomings often present in nostalgia research requiring recall of rates of occurrence over time which may be subject to reporting bias.

There are several limitations of the study worth considering. Regarding the study's design, women veterans were excluded from participation. While this delimitation was purposeful it significantly limited the generalization of the findings particularly as there is some indication women veterans experience the transition back into civilian life differently than their male counterparts (Koblinksy, Schroeder, & Leslie, 2016; Maiocco & Smith, 2016). Similarly although the sample size (N= 194) was comparable to other Cyberball studies, in the absence of replication and further research, these findings cannot yet be confidently extrapolated to all male veterans. Additionally, participants were all recruited via social media and while a bulk of US adults frequent at least one social media site, use of online platforms and apps varies, sometimes widely, by demographic group (Auxier & Anderson, 2021). Moreover, with regard to the demographic data collected, deployment was not clearly defined and as deployments do differ across branches of service with regard to duration and location it it's imperative that reported numbers of deployments be interpreted with caution, if at all.

Within the context of these limitations, the findings of the current study provide novel experimental support for the growing body of survey data indicating that veterans suffer from perceived stigma and isolation by nonveterans. These findings also hint at other unexplored but potentially important areas that may also help illuminate the experience of the transitioned service member.

Chapter 5: Future Directions

Despite decades of well-intentioned efforts, substantial resources, and commitments by Congress, the Department of Defense, and the Department of Veterans Affairs, there has been little change in veteran suicide rates (Beynon, 2020) and few clinical improvements in effectively treating military-related PTSD with only a third to half of patients responding well to VA frontline treatments (Steenkamp, Litz, & Marmar, 2020). For this reason, a broader focus outside of the traditional psychopathological and mental health framework is critical for understanding and addressing veteran distress.

To advance this approach in future studies, first and foremost it will be impetrative to replicate the current findings and in particular to further explore the potentially intriguing finding that veteran exclusion by other veterans actually produced the lowest levels of loneliness. Other research designs might also be utilized to probe these findings. For example, the current study tested ostracism by veterans and civilian others using a between-subjects scheme. Future studies might also explore this issue using a within-subjects design to better detect the casual relationship between the variables.

Another paradigm that mimics social media, Ostracism Online, might be even more effective in beginning to assess the impact of social media on feelings of loneliness. In particular, this paradigm might most comprehensively assess the unexpected modest finding that suggested veterans feel less lonely when ostracized by other veterans. In this paradigm, participants are told they have to create a personal profile consisting of an avatar and a short description of themselves. Next, participants engage in an introductory phase in which the group members view each other's profiles. During this phase, group members communicate social attention to one another in the form of a *like*, similar to Facebook. The level of ostracism is

manipulated by the number of *likes* a participant's personal profile receives. The psychological realism of this format along with the more customizable features allows researchers to study groups of varying magnitude and composition (Wolf et al., 2015).

In addition to replication and the utilization of different ostracism paradigms, future studies might also make use of a priming task for nostalgia and warrior identity. Such tasks might include the participant writing about their most fond memory from their time in service or asking participants to share a photo of them in uniform or be exposure to military-related images.

It is perhaps worth noting that nostalgia was once considered a battlefield disease during the American Civil War. Characterized by intense longing for home, it was understood not only as an emotional state but a physiological one as well (Clarke, 2007). The young were considered to be particularly susceptible with those most vulnerable being the volunteers and those removed from the battlefield as either patients or prisoners of war. Some Union soldiers wrote frequently about their longing and the criticality of controlling the intensity of such feelings for fear of literal death from its potency (Clarke, 2007). More recent veterans have exhibited longing for the simplicity of combat. As one Marine veteran turned journalist James LaPorta stated, "I miss the simplicity of war. The intimacy of it, where the bonds forged in adversity are so strong, one can identify an individual by their silhouette during a night patrol (Benyon, 2020)." It is likely such longing confers a psychological burden not unlike that experienced by earlier generation of veterans and outside the bounds of traditional diagnostic criteria, though no current research assesses the impact of this experience on military veterans.

Research on loneliness emphasizes the fact that we as humans require not just the presence of others but significant others with whom we trust, interact, and work together to live and succeed (Cacioppo et al., 2105; Cacioppo & Patrick, 2008). Moreover, the physical presence

of such significant others is not sufficient, feelings of connectedness are key (Cacioppo et al., 2015). During transition programming, service members are on active duty, surrounded by other service members, on a military installation, and still connected to their support networks. It is likely most are little concerned with establishing and building new relationships as their current ones still exist.

Programmatically, organizations or protocols that foster mentorship and peer support with a specific focus on increasing connectedness throughout the transition process will be critical in beginning to address the impact of veteran loneliness. Clinically, however, interventions which target loneliness and seek to increase social engagement appear to bear less effect than those targeting maladaptive cognitions which perpetuate lonely feelings (Cacioppo et al., 2015). Therefore, early integration of programs coupled with psychoeducation during transition programming might begin to effectively bridge the civilian-military divide and preempt the development of loneliness.

Conclusion

Studies like the current study provide a novel avenue to capture aspects of the veteran transition to civilian life. The anticipated and supported finding that veterans experience greater levels of loneliness when excluded or ostracized by non-veterans suggests an imperative need for broader research frameworks and increased dedication towards educating veterans on the necessity of meaningful social connectivity post-transition.

The transition to civilian life appears to be a unique period of vulnerability for veterans. Yet, there is a sparse body of research dedicated to understanding why this might be. What research does exist is limited as most of it is survey report and cross-sectional in design. What is more, the bulk of this work has focused predominantly on hiring and employment and integration into higher education. While critical elements when examining the distinct psychosocial characteristics of this period, a more comprehensive approach that takes into account other components such as military socialization, memorialization and nostalgia for service, impact of social media, and other culturally related phenomenon is essential to better discerning the significance of this period.

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Table A1

Baseline characteristic	Veteran-Inclusion		Non Veteran-Inclusion		Veteran - Exclusion		Non Veteran - Exclusion		Full Sample	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Age										
18-25	5	2.6	3	1.6	0	0	2	1.0	10	5.2
26-35	8	4.2	12	6.3	17	8.9	14	7.3	51	26.7
36-45	24	12.6	22	11.5	19	9.9	17	8.9	82	42.9
46-55	15	7.9	11	5.8	13	6.8	7	3.7	46	24.1
Over 55	0	0.0	1	0.5	1	0.5	0	0.0	2	1.0
Branch of Service										
Army	22	11.5	19	9.9	29	15.2	27	14.1	97	50.8
Navy	6	3.1	7	3.7	4	2.1	4	2.1	21	11.0
Air Force	10	5.2	5	2.6	7	3.7	7	3.7	29	15.2
Marine Corps	8	4.2	12	6.3	10	5.2	11	5.8	41	21.5
Coast Guard	0	0.0	1	0.5	2	1.0	0	0.0	3	1.6
Deployments										
Never deployed	10	5.2	19	9.9	11	5.8	17	8.9	57	29.8
One deployment	14	7.3	13	6.8	9	4.7	14	7.3	50	26.2
Two deployments	11	5.8	6	3.1	6	3.1	17	8.9	40	20.9
Three or more	9	4.7	15	7.9	7	3.7	13	6.8	44	23.0

Note. N =191. *Participants were all male.*

Final baseline Characteristics of Participants

Table A2

Descriptive Statistics and Correlations for Study Variables

Variable	n	M	SD	1	2	3	4	5
1. WhoPassed Veteran Non-Veteran[a]	191	0.51	0.501	—				
2. Number of Passes Inclusion Exclusion[b]	191	0.51	0.501	0.026	—			
3. Warrior Identity	191	89.5	9.273	0.074	0.038	—		
4. Loneliness	191	19.07	5.875	0.125	0.018	-0.081	—	
5. Nostalgia	191	11.86	4.127	-0.038	0.123	.494**	0.122	—

[a] 0 = veteran players and 1 = non-veteran players

[b] 0 = inclusion and 1 = exclusion

*p <.05. **p <.01

Table A3

Variable	Model 1			Model 2			Model 3			Model 4		
	B	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Loneliness	19.319	0.843		17.223	1.439		26.971	4.14		29.635	4.794	
V-NV Other	−7.1	1.198	−0.061	−0.657	1.192	−0.056	−0.651	1.175	−0.056	−0.637	1.176	−0.054
Inclu-Exclus	−1.979	1.192	−0.169	−2.173	1.19	−0.185	−2.223	1.173	−0.19	−2.286	1.177	−0.195
V-NV Other x Inclu-Exlcu	4.233*	1.673	0.32	4.248*	1.664	0.321	4.404*	1.642	0.332	−4.767	9.654	−0.36
Nostalgia Combined Score				0.182	0.102	0.128	0.325*	0.115	0.228	0.414*	0.144	0.291
Warrior Identity							−0.128*	0.051	−0.202	−0.169*	0.061	−0.267
V-NV Other x Inclu-Exclu x Nostalgia										−0.234	0.241	−0.234
V-NV Other x Inclu-Exclu x Warrior Identity										0.133	0.115	0.918
R^2		0.048			0.065			0.095			0.103	
F Change for R^2		3.168*			3.211*			6.282*			0.822	

Note: V-NV Other = Veteran or Non-Veteran passers and was represented as two dummy variables with 0 serving as Veteran passers. Inclu-Exclu = Inclusion or Exclusion and was represented as two dummy variables with 0 serving as the inclusion condition.

*p < .05

Summary of Hierarchical Regression Analysis for Variance Predicting Veteran Loneliness (n =191)

Appendix A

TEACHERS COLLEGE COLUMBIA UNIVERSITY
RESILIENCE CENTER
★ FOR VETERANS & FAMILIES ★
RESEARCH AND PSYCHOLOGICAL SERVICES

Are you a male, US military veteran?

We'd like to invite you to participate in a study entitled "Cognitive and Emotional Differences Between Military Veterans and Civilians." (IRB Protocol 21-128)

The study will take approximately 20-25 minutes of your time.

For your effort, you will be offered a $15 gift card of your choice to the following:

Amazon
Uber Eats
Door Dash
Apple
Target

In this study you will be asked to complete a questionnaire, engage in <5 min task, and answer a follow-on questionnaire about your experience.

During the study, there will be attention and content checks to ensure validity. If you do not pass the attention checks, complete the short task, or correctly answer the veteran screener questions, you will not receive compensation.

Results will be reviewed prior to e-gift card delivery.

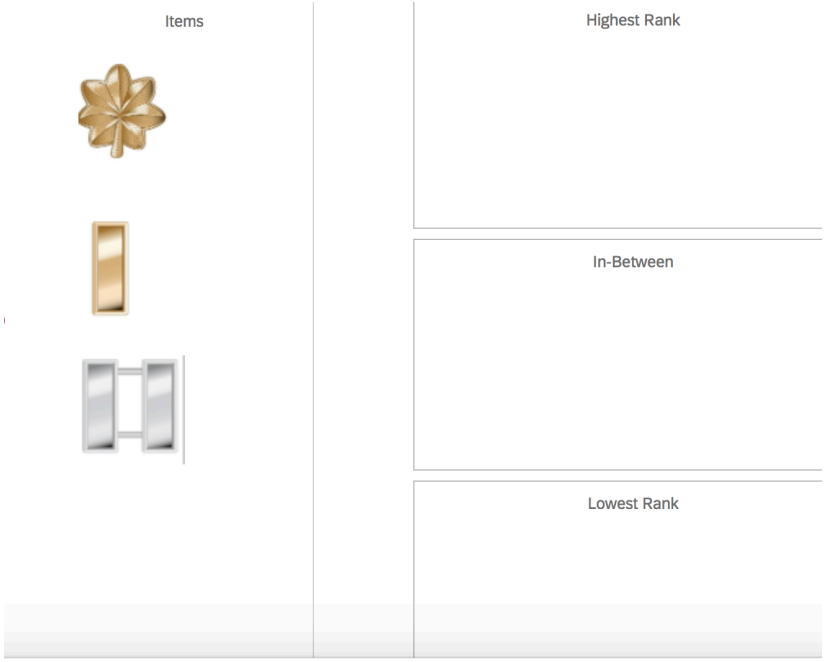
Click here to begin: https://tccolumbia.qualtrics.com/jfe/form/SV_7Oo6gEQwWN0n29E

Appendix B

1. What is the acronym for the locations where final physicals are taken prior to shipping off for basic training? (4 letters)

2. What is the acronym for the generic term the military uses for various job fields? (3 letters)

3. Please put these officers rank in order:



4. In which state was your basic training base located?

5. Please put these enlisted ranks in order:

Items

Highest

In-Between

Lowest

Appendix C

Thank you for participating in the study! We would like to tell you exactly what the purpose of this study was. We told you that we were studying the differences in cognitive and emotional differences between military veterans and non-military veterans. This is true. However, during the ball passing game it's important for you to know that you were playing against a computer simulation. None of the other players were real.

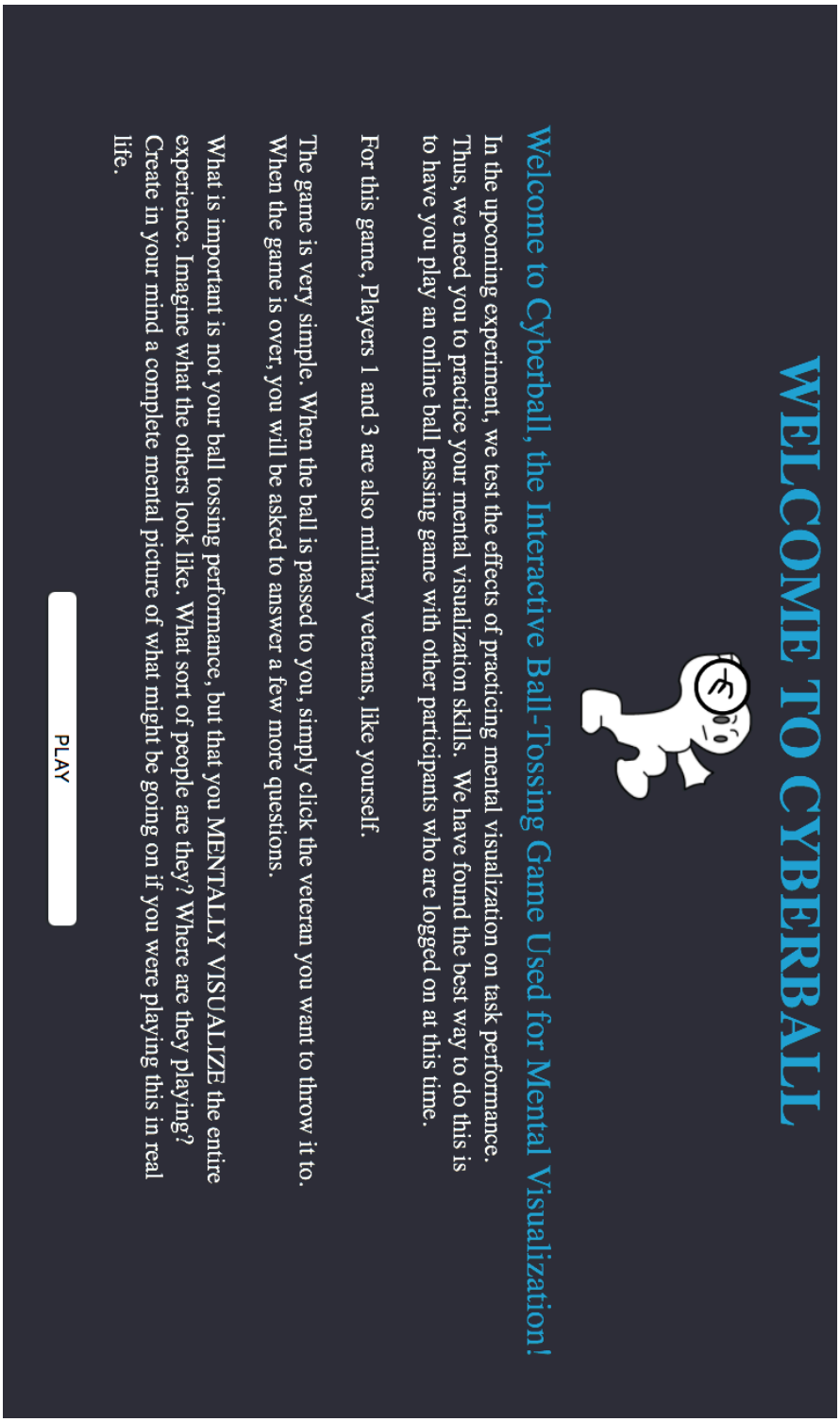
Deception was necessary so that we could simulate real life conditions of being included or excluded and get your natural responses to being in these circumstances. More specifically, we are trying to better understand the impact of veterans being excluded by civilians.

Your participation in this research is very important. We realize that finding out that we were not up front with you regarding some aspects of the study may be upsetting. If you are not satisfied with our explanation and would like to speak to us farther, please reach out to Meaghan Mobbs at mm4713@tc.columbia.edu or George Bonanno at 212-678-3468; gab38@tc.columbia.edu.

Finally, this is an ongoing study and many other participants may be involved, we ask that you not talk about the study, post about it on message boards, or disclose what we just revealed to you. We ask this to preserve the spontaneity and natural reactions of participants. Thank you again for your participation. If you have experienced a significant level of distress from participation in this study, please contact the Veteran's Crisis Line at 1-800-273-8255 and Press 1 or text 838255.

Please click next to be taken to the payment platform.

Appendix D



Cyberball Welcome Message for Veteran Other (i.e. I-V and E-V)